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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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For: TUNING APPARATUS AND RADIO-
CONTROLLED TIMEPIECE USING
SAME

09/14/05
Date

Art Unit:

Examiner:



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PRELIMINARY AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

After assigning a filing date and prior to calculation of the filing fee, please amend the application as follows:

In the Claims:

Please amend claims 5-15, 17-19, 21 and 22 as follows:

1. (Original) A tuning circuit comprising:

a semiconductor substrate, which comprises a plurality of semiconductor switches, a plurality of first capacitors, connected each in series with said plurality of semiconductor switches, and switch controlling means for controlling opening and closing of the semiconductor switches; and

a coil connected in parallel to said plurality of first capacitors, wherein the total electrostatic capacitance of said plurality of first capacitors is varied by said switching controlling means individually controlling said opening and closing said plurality of semiconductor switches connected to said plurality of first capacitors, in accordance with a received station selection signal of a standard radio wave that includes time information, so as to vary a tuned frequency of a tuning circuit formed by said plurality of first capacitors and said coil.

2. (Original) A tuning circuit according to claim 1, further comprising, either on said semiconductor substrate or outside said semiconductor substrate, a second capacitor, which has either a fixed capacitance or a variable capacitance, and which is connected to said coil in parallel with said group of first capacitors.

3. (Original) A tuning circuit according to claim 2, wherein said second capacitor is subjected to control that differs from the control to which said first capacitors are subjected.

4. (Original) A tuning circuit according to either claim 2 or claim 3, wherein at least one of said second capacitances is controlled by said switch controlling means via said semiconductor switch provided on said semiconductor substrate.

5. (Currently Amended) A tuning circuit according to any one of claim 1 through ~~claim 4~~claim 3, which is used, including an antenna, within a metal exterior part made of a metallic material.

6. (Currently Amended) A tuning circuit according to any one of claim 1 through ~~claim 5~~claim 3, wherein an on resistance of each of said semiconductor switches is smaller than an impedance of each of said first capacitors connected in series with each said semiconductor switch.

7. (Currently Amended) A tuning circuit according to any one of claim 1 through ~~claim 5~~claim 3, wherein an off resistance of each of said semiconductor switches is larger than an impedance of each of said first capacitors connected in series with each said semiconductor switch.

8. (Currently Amended) A tuning circuit according to any one of claim 1 through ~~claim 7~~ claim 3, wherein a resistance value of a resistance part used in an amplifier circuit connected to a receiving circuit is set so as to be larger than an impedance of a tuning capacitor provided in said tuning circuit.

9. (Currently Amended) A tuning circuit according to any one of claim 1 through ~~claim 7~~ claim 3, wherein a resistance value of a resistance part used in an amplifier circuit connected to a receiving circuit is set so as to be larger than an impedance of a capacitor connected in series with said resistance part used in said amplifier circuit.

10. (Currently Amended) A tuning circuit according to any one of claim 1 through ~~claim 9~~ claim 3, wherein the total value of individual electrostatic capacitances of each of said plurality of first capacitors is 9600 pF or lower.

11. (Currently Amended) A tuning circuit according to any one of claim 1 through ~~claim 10~~ claim 3, wherein an inductance value of said coil is 0.44 mH or greater.

12 (Currently Amended) A tuning circuit according to any one of claim 1 through ~~claim 10~~ claim 3, wherein an inductance value of said coil is 4000 mH or smaller.

13. (Currently Amended) A tuning circuit according to any one of ~~claim 1~~~~claim 2~~ through ~~claim 12~~claim 3, wherein a tuned frequency in said tuning circuit is determined by a first electrostatic capacitance set by a group of said first capacitors and a second electrostatic capacitance of said second capacitor.

14. (Currently Amended) A tuning circuit according to any one of ~~claim 1~~~~claim 2~~ through ~~claim 13~~claim 3, wherein said electrostatic capacitance of said second capacitor is larger than that of said first capacitor.

15. (Currently Amended) A radio-controlled timepiece comprising:
a tuning circuit according to any one of claim 1 through ~~claim 13~~claim 3;
a control means, which controls said tuning circuit, and which has a receiving circuit, which inputs a standard radio wave received by said tuning circuit and performs time correction; and
a display means, which displays time information from said control means.

16. (Original) A radio-controlled timepiece according to claim 15, further comprising a metal exterior part made of a metallic material, which covers said tuning circuit, said control means, and said display means so as to protect them mechanically.

17. (Original) A radio-controlled timepiece according to claim 14, wherein an inductance of said coil of said tuning circuit covered by said metal exterior part is 20 mH or greater.

18. (Currently Amended) A radio-controlled timepiece according to ~~any one of claim 15 through claim 17~~claim 15, wherein, by controlling the opening and closing of said plurality of semiconductor switches of said tuning circuit so as to vary said tuned frequency, it is possible to selectively receive any of a plurality of standard radio waves.

19. (Currently Amended) A radio-controlled timepiece according to ~~any one of claim 15 through claim 18~~claim 15, further comprising a tuning control information storage means for storing tuning control information for the purpose of varying said tuned frequency of said tuning circuit.

20. (Original) A radio-controlled timepiece according to claim 19, wherein said tuning control information storage means is provided within said tuning circuit.

21. (Currently Amended) A radio-controlled timepiece according to either claim 19 or claim 20, wherein said tuning control information storage means is formed by one selected from the group consisting of a pattern-cutting means, a fuse ROM, and a non-volatile memory.

22. (Currently Amended) A radio-controlled timepiece according to any one of claim 15 through claim 21, comprising a test mode, whereby it is possible to change a tuned frequency by an external operating means provided outside said radio-controlled timepiece.

23. (Original) A radio-controlled timepiece according to claim 22, wherein said external operating means includes a non-contact operating method.

24. (Original) A according to claim 23, wherein said non-contact operating method uses radio or infrared.